

Amendments to the Claims

This listing of the claims will replace all prior versions and listings of the claims in the application.

Claims 1-74 were originally filed.

Claims 10, 14, 44, 62, 66, and 72 were previously canceled without prejudice.

Claims 5, 53 – 61, 63-65, 67-68, and 70 are currently canceled without prejudice.

No new claims have been added.

Accordingly, claims 1 – 4, 6 – 9, 11 – 13, 15 – 43, 45 – 52, 69, 71, 73, and 74 are pending.

1. (currently amended) A method comprising:
rendering a polygonal mesh to produce a computer-generated image, the image exhibiting aliasing at its discontinuity edges;
sorting the discontinuity edges prior to overdrawing; and
overdrawing the discontinuity edges as antialiased lines to reduce the aliasing;
identifying sharp edges prior to said rendering; and
finding silhouette edges during runtime, the discontinuity edges being a union of the sharp edges and the silhouette edges.

1 2. (original) A method as recited in claim 1, wherein the polygon mesh
2 comprises a set of triangles.

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4 3. (original) A method as recited in claim 1, wherein the image is
5 stored in memory after rendering, and the overdrawing comprises rendering the
6 discontinuity edges as antialiased lines in the memory to reduce the aliasing at the
7 discontinuity edges.

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9 4. (original) A method as recited in claim 1, further comprising
10 identifying the discontinuity edges as a collection of silhouettes and sharp edges.

11
12 5. (canceled)

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14 6. (original) A method as recited in claim 1, further comprising shading
15 the discontinuity edges.

16
17 7. (original) A method as recited in claim 1, further comprising
18 blending selected discontinuity edges.

19
20 8. (original) A method as recited in claim 1, further comprising
21 orienting the discontinuity edges in a consistent manner.

22
23 9. (original) A method as recited in claim 1, further comprising
24 asymmetrically blending selected discontinuity edges.

10. (canceled)

11. (original) One or more computer-readable media comprising computer-executable instructions that, when executed, perform the method as recited in claim 1.

12. (previously amended) A method comprising:
determining discontinuity edges of a polygon mesh by identifying sharp edges during a preprocess prior to rendering the polygon mesh and finding silhouette edges during runtime after rendering the polygon mesh; and
overdrawing the discontinuity edges as antialiased lines.

13. (original) A method as recited in claim 12, wherein said determining comprises identifying sharp edges and silhouettes.

14. (canceled)

15. (original) A method as recited in claim 12, further comprising shading the discontinuity edges.

16. (original) A method as recited in claim 12, further comprising blending selected discontinuity edges.

1 17. (original) A method as recited in claim 12, further comprising:
2 asymmetrically blending selected discontinuity edges.

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4 18. (original) A method as recited in claim 12, further comprising
5 orienting the discontinuity edges in a consistent manner.

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7 19. (original) A method as recited in claim 12, further comprising
8 sorting the discontinuity edges prior to said overdrawing.

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10 20. (original) One or more computer-readable media comprising
11 computer-executable instructions that, when executed, perform the method as
12 recited in claim 12.

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14 21. (original) In a process for rendering computer-generated graphics, a
15 method comprising:

16 constructing a data structure prior to rendering a polygon mesh; and
17 finding silhouette edges in the polygon mesh during runtime using the data
18 structure; and
19 omitting concave silhouette edges from the data structure.

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21 22. (original) A method as recited in claim 21, further comprising
22 overdrawing the silhouette edges as antialiased lines.

23. (original) A method as recited in claim 21, further comprising shading the silhouette edges.

24. (original) A method as recited in claim 21, further comprising blending selected silhouette edges.

25. (original) A method as recited in claim 21, further comprising asymmetrically blending selected silhouette edges.

26. (original) A method as recited in claim 21, further comprising sorting the silhouette edges.

27. (original) One or more computer-readable media comprising computer-executable instructions that, when executed, perform the method as recited in claim 21.

28. (previously amended) In a process for rendering computer-generated graphics, a method comprising:

identifying sharp edges prior to runtime;
constructing a data structure prior to rendering a polygon mesh;
finding silhouette edges in the polygon mesh during runtime using the data structure; and
collecting the sharp edges and the silhouette edges in a list of discontinuity edges of the polygon mesh.

1 29. (original) A method as recited in claim 28, further comprising
2 shading the discontinuity edges:

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4 30. (original) A method as recited in claim 28, further comprising
5 blending selected discontinuity edges.

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7 31. (original) A method as recited in claim 28, further comprising
8 asymmetrically blending selected discontinuity edges.

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10 32. (original) A method as recited in claim 28, further comprising
11 sorting the discontinuity edges.

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13 33. (original) One or more computer-readable media comprising
14 computer-executable instructions that, when executed, perform the method as
15 recited in claim 28.

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17 34. (original) A method comprising:
18 rendering a polygonal mesh;
19 determining discontinuity edges of the polygon mesh;
20 sorting the discontinuity edges according to visibility; and
21 overdrawing the discontinuity edges in an order resulting from said sorting.

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23 35. (original) A method as recited in claim 34, wherein said determining
24 comprises:
25 identifying sharp edges prior to said rendering; and

1 finding silhouette edges during runtime, the discontinuity edges being a
2 union of the sharp edges and the silhouette edges.

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4 36. (original) A method as recited in claim 34, wherein said sorting
5 comprises sorting the discontinuity edges according to depth.

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7 37. (original) A method as recited in claim 34, wherein said overdrawn
8 comprises overdrawn the discontinuity edges as antialiased lines.

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10 38. (original) A method as recited in claim 34, further comprising
11 shading the discontinuity edges.

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13 39. (original) A method as recited in claim 34, further comprising
14 blending selected discontinuity edges.

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16 40. (original) A method as recited in claim 34, further comprising
17 asymmetrically blending selected discontinuity edges.

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19 41. (original) A method as recited in claim 34, further comprising
20 orienting the discontinuity edges in a consistent manner.

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22 42. (previously presented) One or more computer-readable media
23 comprising computer-executable instructions that, when executed, perform the
24 method as recited in claim 34.
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43. (previously amended) A method comprising:
rendering a polygonal mesh;
identifying one or more silhouette edges of the polygon mesh for a given
viewpoint by constructing a data structure prior to rendering the image and finding
the silhouette edges during runtime using the data structure;
storing the silhouette edges in an output list; and
overdrawing the silhouette edges as antialiased lines.

44. (canceled)

45. (original) A method as recited in claim 43, further comprising
shading the silhouette edges.

46. (original) A method as recited in claim 43, further comprising
sorting the silhouette edges prior to said overdrawing.

47. (original) One or more computer-readable media comprising
computer-executable instructions that, when executed, perform the method as
recited in claim 43.

48. (original) A method comprising:

A. during a preprocess phase, performing the following:

identifying sharp edges present in a polygon mesh used to generate a
graphical image;

1 reconstructing a data structure to store possible silhouette edges

2 identified during a subsequent runtime phase;

3 B. during the runtime phase, performing the following:

4 rendering the polygonal mesh to produce a rendered image;

5 identifying silhouette edges that occur from a given viewpoint of the

6 rendered image using the data structure, the silhouette edges together

7 with the sharp edges forming a set of discontinuity edges;

8 shading the discontinuity edges;

9 sorting the discontinuity edges; and

10 overdrawing the discontinuity edges as antialiased lines.

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12 49. (original) A method as recited in claim 48, wherein the sorting
13 comprises sorting the discontinuity edges according to depth.

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15 50. (original) A method as recited in claim 48, wherein the shading
16 comprises asymmetrically shading the discontinuity edges.

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18 51. (original) A method as recited in claim 48, wherein the shading
19 comprises applying blending processes that balance temporal smoothness and
20 spatial sharpness.

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22 52. (original) A method as recited in claim 48, wherein the shading
23 comprises orienting the discontinuity edges in a consistent manner.

53 - 68. (canceled)

69. (currently amended) One or more computer-readable media comprising computer-executable instructions that, when executed, direct a graphics computing device to:

render a polygonal mesh;
detect discontinuity edges in the polygon mesh;
sort the discontinuity edges according to depth; and
overdraw the discontinuity edges as antialiased lines to reduce the aliasing;
identify sharp edges prior to rendering the polygon mesh; and
find silhouette edges after rendering the polygon mesh, the discontinuity
edges being a union of the sharp edges and the silhouette edges.

70. (canceled)

71. (original) One or more computer-readable media as recited in claim 69, further comprising computer-executable instructions that, when executed, direct the graphics computing device to shade the discontinuity edges.

72. (canceled)

73. (original) One or more computer-readable media as recited in claim 69, further comprising computer-executable instructions that, when executed, direct the graphics computing device to:

orient the discontinuity edges in a consistent manner; and

1 blend the discontinuity edges using asymmetric blending.

2

3 74. (previously presented) A system comprising:

4 means for identifying sharp edges present in a polygon mesh;

5 means for rendering the polygonal mesh to produce a rendered image;

6 means for identifying silhouette edges that occur from at least one

7 viewpoint of the rendered image;

8 means for shading the sharp edges and the silhouette edges;

9 means for sorting the sharp edges and the silhouette edges; and

10 means for overdrawing the sharp edges and the silhouette edges as

11 antialiased lines.

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